

It must be distinctly understood that all of the foregoing facts, as well as those which are to follow on 'Fall Migration,' are local, relating only to the vicinity of Grinnell, Iowa. Everything given has been taken from notes which were made in the field, weather excepted. The effect of weather could have been more clearly shown from weather records extending over the whole Mississippi Valley; but these were not accessible.

BIRDS OF SAN FERNANDO, LOWER CALIFORNIA.

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THE region embraced within the limits of the present paper has for its center the old abandoned copper mines of San Fernando, one league south of the ex-mission of the same name which is situated about twenty-five miles from the Pacific coast of the peninsula, in about latitude $29^{\circ} 30'$. It has an approximate altitude of fifteen hundred feet above sea level and is the center of one of the most barren of the Lower Californian deserts. At the old San Fernando mission is found a little marshy ground and a few pools of salty, alkaline water that is so disgusting that even mules from more favored lands to the north refuse to drink it until forced to do so by continued thirst. There is enough, however, to nourish a very respectable growth of mesquite, cat-claw and palo verde which extends down the narrow valley for a mile or more below the old ruins of the mission. The mining camp is separated from this, the only water and verdure for forty-five miles, by a low rocky range of hills about three miles in extent. The mines are on the edge of a somewhat open country, which extends to the coast at San Carlos in a series of mesas and level valleys. At the mines, and in two of the arroyos between that point and the coast, wells had been dug and a limited quantity of water obtained at about eight feet in depth. The only natural surface water other than that at the mission was a small tank

formed in a natural cavity in the rock in a deep cañon about ten miles south of the mines. The natives of El Rosario, forty-five miles northwest of the San Fernando mission, told me that this region was visited by a copious rainfall about one year in five, the other four being often without any rain whatever, a statement that was borne out by the general appearance of the country, which supports hardly any vegetation but the most hardy of desert species.

A short distance below El Rosario, the traveller en route to San Fernando meets with the first candle-wood tree (*Fouquieria columnaris*); these become rapidly more common until they form 'forests,' covering the entire country with a growth dense enough to be called well timbered were the 'trees' anything more than poles. The cirio, as the Spanish call the candlewood, seldom branches unless the top is broken or otherwise injured, and the mature plant resembles nothing so much as a gigantic inverted parsnip, often fifty or seventy-five feet in height, with a bunch of yellowish blossoms at the extreme top. The trunk has a reticulated framework for an inch or two in depth and then a soft watery pith takes the place of wood. This seems to be appreciated by the Woodpeckers, for I seldom found a dead tree that did not show the marks of either *Dryobates* or *Colaptes*, nor were the live cirios exempt. Almost exactly coëxtensive with the cirio, and dividing with it the honor of a forest tree, was the cardoon or giant cactus (*Cereus pringlei*), the largest of all the cacti. This was not so abundant as the cirio, but much more conspicuous owing to its larger trunks. Fine specimens on the San Carlos mesa, near San Fernando, measured not less than seventy feet in height, with from six to twelve branches, each from twenty-four to thirty-six inches in diameter. The smaller cacti were abundant, often forming thickets impassable without the aid of a brush knife. On the hills near the mines were a few elephant trees (*Veatchia discolor*), and in a valley ten or twelve miles south, they formed one of the chief features of the landscape. This botanical curiosity starts out in life with the apparent intention of becoming a large, well-formed tree, but after attaining a height of four to eight feet, and realizing what a desolate country it is destined to live in, it seems to have become

despondent and devoted all its spare time to thickening its trunk and branches until they become enormous in proportion to the height of the tree, and very badly contorted. Although I have seen the tree nearly or quite every month in the calendar, I have never seen it in leaf or flower. Along the dry arroyos about the mine were a few stunted mesquites, cat-claw and a species of *Prunus*, and a scattered growth of grease wood (*Larrea*) was to be found in most of the open country.

The notes upon which the present paper is based were taken during two or three short trips through the country in 1887-88, a week spent in the region in January, 1894, and from April 26 to June 25, 1894, during which time I was located at the copper mines near the San Fernando mission. At the time of my visit, the country was undergoing one of its dry spells, no rain having fallen for the past three years.

With the exception of the immediate neighborhood of the mission, birds were very scarce and remarkable for their shyness. A few migrants lingered about camp after my arrival April 26, but soon left. As I was constantly riding about between the coast and the mine, it is not likely that very many of the summer residents escaped notice. The list is, however, somewhat remarkable for what it does not contain. Had I been able to spend more of my time in the mesquite growth about the mission, the number of species observed would have been much greater, but unfortunately nearly all of my observations were confined to the dry mesas and barren arroyos farther south where the birds were necessarily very rare.

1. *Anas cyanoptera*. CINNAMON TEAL.—A small flock was started from a mud hole at the mission on April 26. It is very probable that many species of Ducks would be found about the small pools during the winter months.

2. *Ægialitis vocifera*. KILDEER.—At the mission a few of these Plovers were seen on several occasions but never at any other locality. One or two made a practice of visiting the mines every night during April and May, arriving at about 8.30 P.M. and making several circuits of the camp before leaving.

3. *Callipepla californica vallicola*. VALLEY PARTRIDGE.—Very common near the water about the San Fernando mission and a few seen throughout the country. At camp there were two flocks of not less than twenty each that regularly visited the corral to pick up the grain

scattered by the mules. They arrived soon after daybreak each morning, from opposite directions, and after an hour or so departed, lingering about the hillsides on their respective sides of the arroyo until about four o'clock in the afternoon, when another visit was paid the corral and an hour or more devoted to getting supper, after which they departed, all going in the direction from which they came, as fast as their sturdy little legs could carry them, seldom flying even for a few feet unless alarmed. I never knew just how far these birds went to roost or why they left the immediate vicinity of camp, but that they travelled some distance I discovered one evening when returning to camp. I was rather more than a mile from the corral when I saw a flock of Partridges coming toward me from direction of camp, running along the dry arroyo. They were some distance from me and evidently unaware of my presence, and by remaining quietly in the shelter of a large cardoon I had the pleasure of seeing the entire flock file swiftly by, keeping up a series of low conversational notes as they hurried on up the gulch. The last two were shot and all doubts regarding the identity of the flock set at rest when their crops were found filled with barley. I think that nearly all of the Partridges within a radius of two miles of the mine were drawn to that spot by the scattered grain, and were represented in the two flocks daily seen.

4. *Zenaidura macroura*. MOURNING DOVE.—One or two visited the corral occasionally. They were rather more common about the mission but nowhere abundant.

5. *Melopelia leucoptera*. WHITE-WINGED DOVE.—In 1887 I found this species not uncommon about the mission and in the neighborhood of the water holes in June, and its peculiar notes were often heard from the giant cactus and cirios between that point and the gulf. It was not at all common, however, in 1894, only one or two being heard at camp and less than half a dozen seen about the water holes at the mission.

6. *Cathartes aura*. TURKEY VULTURE.—Very abundant everywhere.

In 1887 I found the bones of a recently killed California Vulture (*Pseudogryphus californianus*) at a water hole about twenty miles north of San Fernando, in a country exactly similar to that about the mines, but after questioning a number of the natives, I concluded that its occurrence there must have been very unusual and that this point was probably the limit of its range.

7. *Elanus leucurus*. WHITE-TAILED KITE.—A single bird, which dashed past me, June 12, on the San Carlos mesa, fifteen miles south of the mines, is the only record I have for the species south of Cape Colnett.

8. *Parabuteo unicinctus harrisi*. HARRIS'S HAWK.—In 1887 and 1888, Harris's Hawk was not uncommon between El Rosario and San Carlos, and several were seen about San Fernando. They were uncommon, however, in 1894, only two, or perhaps one pair, were seen about camp and as many more at the mission. A few were nesting in cirios between the mine and the beach. A good many nests of this species and of *Buteo*

were seen in the candle-woods that had sent out branches, and occasionally one was seen in a cardoon, but not often.

9. *Buteo borealis calurus*. WESTERN RED-TAIL.—About as common as the preceding species.

10. *Aquila chrysaetos*. GOLDEN EAGLE.—Only a single bird was seen, at the water tank south of the mine.

11. *Falco peregrinus anatum*. DUCK HAWK.—In 1887 I found a pair nesting in a cliff near the coast, below San Fernando, and upon visiting the spot in January, 1894, a pair flew from the same ledge. None were seen in the interior.

12. *Falco sparverius deserticolus*. DESERT SPARROW HAWK.—I refer the San Fernando Sparrow Hawk to this race with some hesitancy, no specimens from that region being in my collection. I have taken true *deserticolus* from as far south as Ensenada. Sparrow Hawks were not common in the San Fernando region, only a few being seen about the mission and on one or two occasions at the mines.

13. *Strix pratincola*. AMERICAN BARN OWL.—In 1887 I found a pair of Barn Owls perched on a timber in one of the old wells in the lower San Fernando valley. I think none were seen elsewhere in that locality, nor were any seen during the past season. This species was not uncommon on the upper part of the Rosario water-shed, fifty miles north of San Fernando. They were nesting in the adobe banks along the arroyos and were frequently seen and heard.

14. *Bubo virginianus subarcticus*. WESTERN HORNED OWL.—Rare in the region here embraced. One seen between the mine and the coast, in June, and one or two heard, complete my record.

15. *Speotyto cunicularia hypogæa*. BURROWING OWL.—A few in the more open valleys between the mines and the coast. I closely questioned the Indians of the San Fernando and El Rosario valleys regarding small Owls that might be found living in the holes in the cardoons, hoping to hear of *Megascops* or *Glaucidium*, as everything seemed favorable to their presence, but none of them had seen any small Owls, nor could I find any indications of them.

16. *Geococcyx californianus*. ROADRUNNER.—Quite common about the mines, and much more so near the water holes near the mission.

17. *Dryobates scalaris lucasanus*. ST. LUCAS WOODPECKER.—Abundant about the cardoon and cirio trees but very shy. Young were seen in families of four or five, June 10-20. This species was also not uncommon along the coast and lower foothills as far as San Telmo at least, living in the thickets of pitahaya cactus (*Cereus gummosus*) and nesting in the dry flower stalks of the mescal agave which grows with the cactus. San Fernando and San Telmo skins are indistinguishable from those from Cape St. Lucas.

18. *Melanerpes uropygialis*. GILA WOODPECKER.—The range of this species along the Pacific slope is exactly coextensive with that of *Cereus pringlei*, becoming common with that cactus a short distance below

Rosario and seldom if ever being seen at any distance from the shelter of its mighty branches. At the mission, where the cardoons were very large and abundant, to within a short distance of the mesquite thickets, this Woodpecker delighted in making frequent forays into the lesser growth, spending hours in hammering on the mesquite trunks and hunting through their branches, always beating a precipitate retreat to the cactus on the hillsides above at the first sign of danger. My skins from this region show the San Fernando bird to be rather smaller than those from Arizona, with the white markings of the wings and upper parts somewhat restricted. It may seem desirable to separate them as a subspecies, but with the series at present available, I do not consider it advisable.

19. *Colaptes chrysoides*. GILDED FLICKER.—The northwestern range of this species is almost, if not quite, the same as that of the preceding species, which it resembles in habits. The present species shows a greater preference for the cirio than does *Melanerpes*, though it seems equally fond of the cardoons. My series from San Fernando proves it to be quite different from a small series from Arizona, kindly loaned me by Mr. F. Stephens. The ground color of the upper parts is much darker in the Lower California bird, averaging about bistre brown, while the Arizona skins are broccoli brown; the black markings are also more intense and below especially more abundant in the peninsula specimens; the yellow of the wings and tail is deeper and the measurements less than in the Arizona skins. I have unfortunately no skins from the Cape region, whence Malherbe obtained his type of *chrysoides*, and until such skins are examined it would be unsafe to separate either the Arizona or San Fernando birds.

20. *Phalænoptilus nuttalli*. NUTTALL'S POORWILL.—Of the three specimens before me, collected the past season, two are rather intermediate between *californicus* and *nitidus*, although one was collected as far north as Burro Cañon, north of Ensenada. The third, No. 5266, collected at San Fernando May 4, if not true *nitidus*, is not far from that form. Unfortunately none of my skins of that race from New Mexico are accessible at the present writing, and I cannot give them a direct comparison.

Poorwills were not uncommon in all of the desert regions visited the past season. They are probably resident through most of this country, as I have heard them in December and January. During the summer they were heard nearly every evening at San Fernando and doubtless were nesting, but no nests were found.

21. *Chordeiles acutipennis texensis*. TEXAS NIGHTHAWK.—About the mesquite brush and water holes at the San Fernando mission during migration.

22. *Cyseloides niger*. BLACK SWIFT.—A small flock was seen near San Carlos in May, 1887.

23. *Aëronautes melanoleucus*. WHITE-THROATED SWIFT.—A common resident in all of the deserts about San Fernando; especially common

during the nesting season at the mission, where it nests in all of the high cliffs, and possibly in the giant cactus, though I have no evidence of their so doing.

24. *Calypte costæ*. COSTA'S HUMMINGBIRD.—Very common about San Fernando during the summer. I thought I saw *C. anna* on one or two occasions at the mission, but was not sure.

25. *Myiarchus cinerascens*. ASH-THROATED FLYCATCHER.—Very common everywhere about San Fernando; less so near the coast. One was taken January 8, and a few others seen, so that it is probably a winter resident. About the mines they nest in the abandoned Woodpecker holes in the cardoon and cirio trees, and in the dry blossom stalks of the mescal (*Agave shawii*).

26. *Sayornis saya*. SAY'S PHOEBE.—Not uncommon about the water near the mission, and rather common in the dry arroyos until toward the end of the migration. A few were nesting about the mines, one nest being found twenty-five feet below the surface of the ground in one of the shafts.

27. *Sayornis nigrescens*. BLACK PHOEBE.—Only seen about the mission where it was not uncommon.

28. *Empidonax cineritius*. St. LUCAS FLYCATCHER.—One or two were taken near the mine in May and several were found about the mission in the thick mesquite growth. They sought the shelter of the most dense thickets, seldom venturing into the open, and only making their presence known by an occasional low, plaintive call. They were doubtless nesting, but owing to the difficulty of penetrating the dense, thorny tangle no nests were found.

29. *Otocoris alpestris pallida*. SONORAN HORNED LARK.—Quite common in the open country south of San Fernando, and not infrequently seen at the mines.

30. *Corvus corax sinuatus*. AMERICAN RAVEN.—Very common throughout the region.

31. *Sturnella magna neglecta*. WESTERN MEADOWLARK.—Not uncommon during winter at the mission, but very rare, if present, in summer.

32. *Icterus parisorum*. SCOTT'S ORIOLE.—Very common, a few being found in winter. Their nests were frequently seen buried in the short twigs that cover the trunks of the cirio and well protected by the sharp thorns. They are very fond of the ripe fruit of most of the cacti, especially *Cereus gummosus*.

33. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD.—A few were probably nesting at the mission, as they were seen until the last of June. Occasionally seen about the corral at the mine.

34. *Carpodacus mexicanus frontalis*. HOUSE FINCH.—A few were found in all of the region traversed, but it was common only about the water holes.

35. *Ammodramus sandwichensis alaudinus*. WESTERN SAVANNA SPARROW.—A few were seen about the corral in January.

36. *Zonotrichia leucophrys intermedia*. INTERMEDIATE SPARROW. — Not uncommon as a winter resident along the arroyo below the mission. One was taken at the mine as late as April 29.

37. *Amphispiza bilineata*. BLACK-THROATED SPARROW. — Very common in the interior and not uncommon on the coast. *A. belli* takes the place, to a large extent, of *bilineata* on the coast, crowding it further inland to the north until at San Quintin I very seldom saw it within ten miles of the beach. In 1887 a nest of *bilineata* was found north of San Fernando which contained four eggs, two of which were fresh and normal. The others, though perfect to all appearances, contained nothing but a small yolk.

38. *Amphispiza belli*. BELL'S SPARROW. — Not seen over four or five miles from the beach in the latitude of San Fernando and not very common.

39. *Melospiza fasciata heermanni*. HEERMANN'S SONG SPARROW. — Common about the mission. In Mr. W. E. Bryant's 'Catalogue of the Birds of Lower California' (Proc. Cal. Acad. Sci., Vol. II) he says, under head of *M. f. samuelis*: "I found them quite common in the large fresh-water swamp at El Rosario and Song Sparrows that I suppose were this form were seen at San Fernando." In a series of Song Sparrows representing nearly all of the country between San Diego and San Fernando I can find nothing that approaches *samuelis*, and though I have no specimens from El Rosario I feel sure that Mr. Bryant must have made a mistake in referring the bird to that race, all of my skins being easily referable to *heermanni*. In the San Fernando *Melospiza* I had expected to find some indication of intergradation with *rivularis*, but in the small series from the mission none show any approach to the characteristics of that race. It is possible that on the eastern side of the peninsula it will be found to intergrade with *fallax*, which extends for an unknown distance down the western side of the Gulf, but in the light of the material at my command I would expect to find *rivularis* a distinct local species.

40. *Pipilo fuscus senicula*.¹ LOWER CALIFORNIAN TOWHEE. — Rare about the mine but more common in the mesquite at the mission.

41. *Habia melanocephala*. BLACK-HEADED GROSBEAR. — Seen only as a migrant and but once or twice.

42. *Calamospiza bicolor*. LARK BUNTING. — A flock seen along the coast between El Rosario and San Fernando in April, 1887.

43. *Progne subis hesperia*. WESTERN MARTIN. — Not uncommon at the mission and an occasional pair was seen in other localities, nesting in Woodpecker holes in the giant cactus.

44. *Petrochelidon lunifrons*. CLIFF SWALLOW. — Common during migration, and occasionally seen as long as I was at San Fernando, but no nesting colonies were found.

¹ See *antea*, p. 111.

45. *Tachycineta thalassina*. VIOLET-GREEN SWALLOW.—During early May this species was frequently seen at camp. At the mission it was nesting in the cardoons in May and June.
46. *Phainopepla nitens*. PHAINOPEPLA.—Very common about the mine in January, and but little less so on my return in April, but they soon became rare about camp and quite abundant at the mission. About camp their food consisted of the fruit of a mistletoe which was abundant on the cat-claw.
47. *Lanius ludovicianus gambeli*. CALIFORNIA SHRIKE.—Seen occasionally throughout the region but only common at the mission.
48. *Vireo gilvus*. WARBLING VIREO.—Seen only as a migrant. Rare.
49. *Vireo pusillus*. LEAST VIREO.—A few were met with in the mesquites about camp until about May 15, after which I think none were seen or heard. At the mission they were quite common and evidently nesting in the mesquite thickets.
50. *Helminthophila celata lutescens*. LUTESCENT WARBLER.—A few were seen at camp in late April and the first week in May.
51. *Dendroica auduboni*. AUDUBON'S WARBLER.—Everywhere common in winter but nearly or quite all had departed by the time I returned to camp, April 26.
52. *Dendroica townsendi*. TOWNSEND'S WARBLER.—A female which I shot at camp, May 7, is my only record.
53. *Dendroica occidentalis*. HERMIT WARBLER.—At the mission I shot a female May 16—the only one seen.
54. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—A few were heard in a growth of tules about one of the water holes at the mission.
55. *Sylvania pusilla*. WILSON'S WARBLER.—During the spring migration a few were seen in the mesquites about camp.
56. *Oroscoptes montanus*. SAGE THRASHER.—The Sage Thrasher winters in comparative abundance in most of this region and was seen in many places between the mines and the coast in January. All were gone, however, upon my return in April.
57. *Harporhynchus cinereus mearnsi*. MEARN'S THRASHER.—Quite common about San Quintin and in suitable places as far south as I have collected. (For a fuller account of this subspecies, see Auk, XII, p. 53.)
58. *Harporhynchus redivivus*. CALIFORNIAN THRASHER.—The capture of a specimen at the San Fernando mission somewhat extends the known range of the species. Mr. Bryant in his 'Catalogue of Birds of Lower California' records it from El Rosario upon my authority. At this point it is not uncommon, the extensive brushy valley above the freshwater marshes furnishing surroundings exactly suited to its habits. At San Fernando I found it in small numbers confined to the thickets of mesquite near the water. It was very shy and but a single specimen was secured.
59. *Heleodytes brunneicapillus bryanti*. BRYANT'S CACTUS WREN.—Not uncommon throughout the region but everywhere noticeable for its

extreme shyness. The normal note of the Cactus Wren is quite harsh and unmusical, consisting of a series of notes rapidly uttered in a monotone, but at the mine I once heard one give voice to a song exactly intermediate between the normal, discordant notes of this species and the incomparable song of the Cañon Wren. The full, rich cadence and clear tones of *Catherpes* was very pronounced but not more so than the characteristic *gou-gou-gou* and deeper tones of *Heleodytes*. I was not near enough to secure the bird and before I could get within range it flew further up the mountain where it several times repeated the song that first attracted me. In the description of this race (Auk, July, 1894), the San Fernando Cactus Wrens were referred to *affinis*. The specimens upon which I based my opinion were all winter birds, with the dark markings somewhat obscured by the light, unworn tips of the new plumage. A series of breeding birds prove the San Fernando race to be *bryanti*, though perhaps hardly typical.

60. *Salpinctes obsoletus*. ROCK WREN. — Not uncommon in winter, but rare after my arrival in April.

61. *Catherpes mexicanus punctulatus*. DOTTED CAÑON WREN. — A pair was seen near the coast in June, 1887. One or two were noted near the mission.

62. *Thryothorus bewickii spilurus*. VIGORS'S WREN. — Quite common about the mine as well as at the mission. Several families of young were met with May 15-20.

63. *Psaltriparus minimus californicus*. CALIFORNIAN BUSH-TIT. — Not uncommon about the mesquite thickets in the mission valley; not met with elsewhere.

64. *Auriparus flaviceps*. VERDIN. — Quite common in all of the country south of San Quintin, especially in the mesquite growth. A good many of their nests were found about San Fernando, usually in cat-claw but occasionally in a chola. They are very restless, flying from one bush to another; often seen searching for insects about the blossoms of the cardoons. At such times their actions are very similar to those of the Titmice of the genus *Parus*, hanging head or back downward like a veritable Chickadee, and uttering its clear call note at frequent intervals. Several broods are probably raised, as I found young in the nest from April 24 to the time of my leaving, the last of June.

65. *Poliophtila californica*. BLACK-TAILED GNATCATCHER. — Very common about the mine, nesting and probably resident.